

FIGURE 1
(Prior Art)

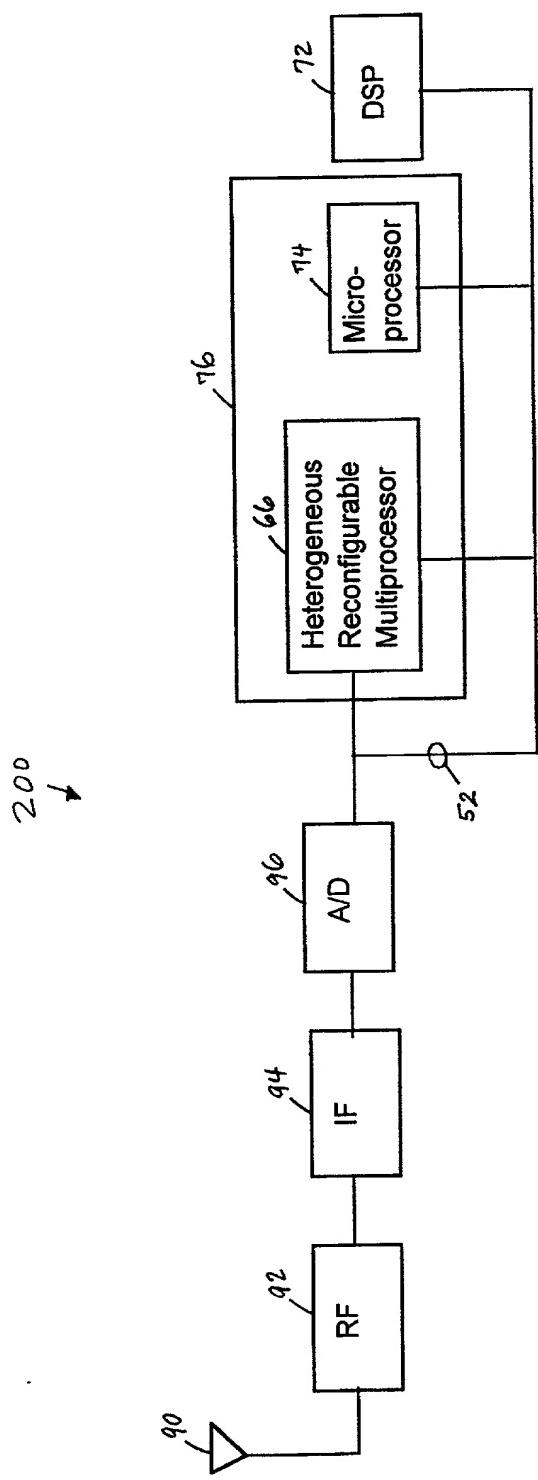


FIG. 2

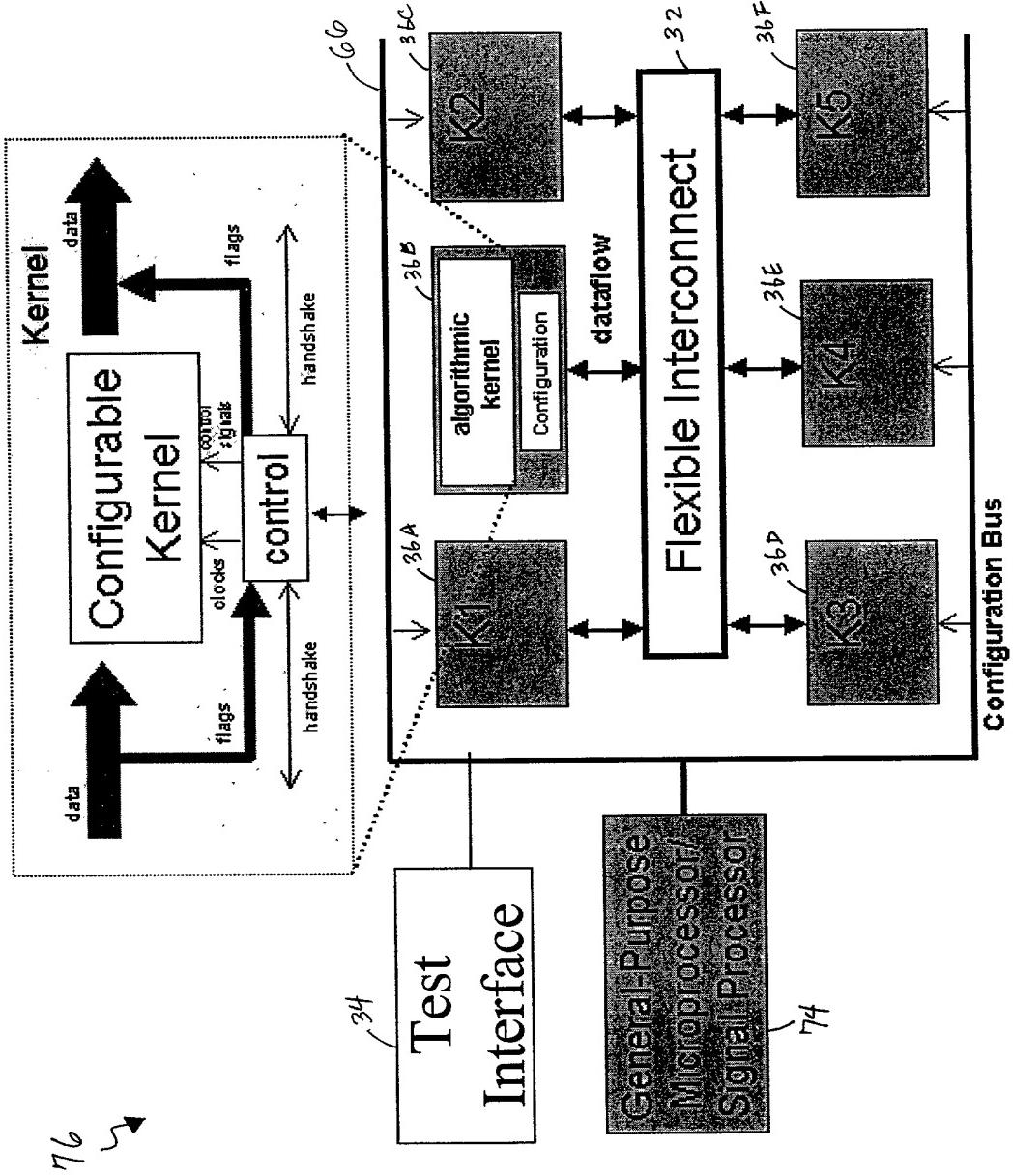
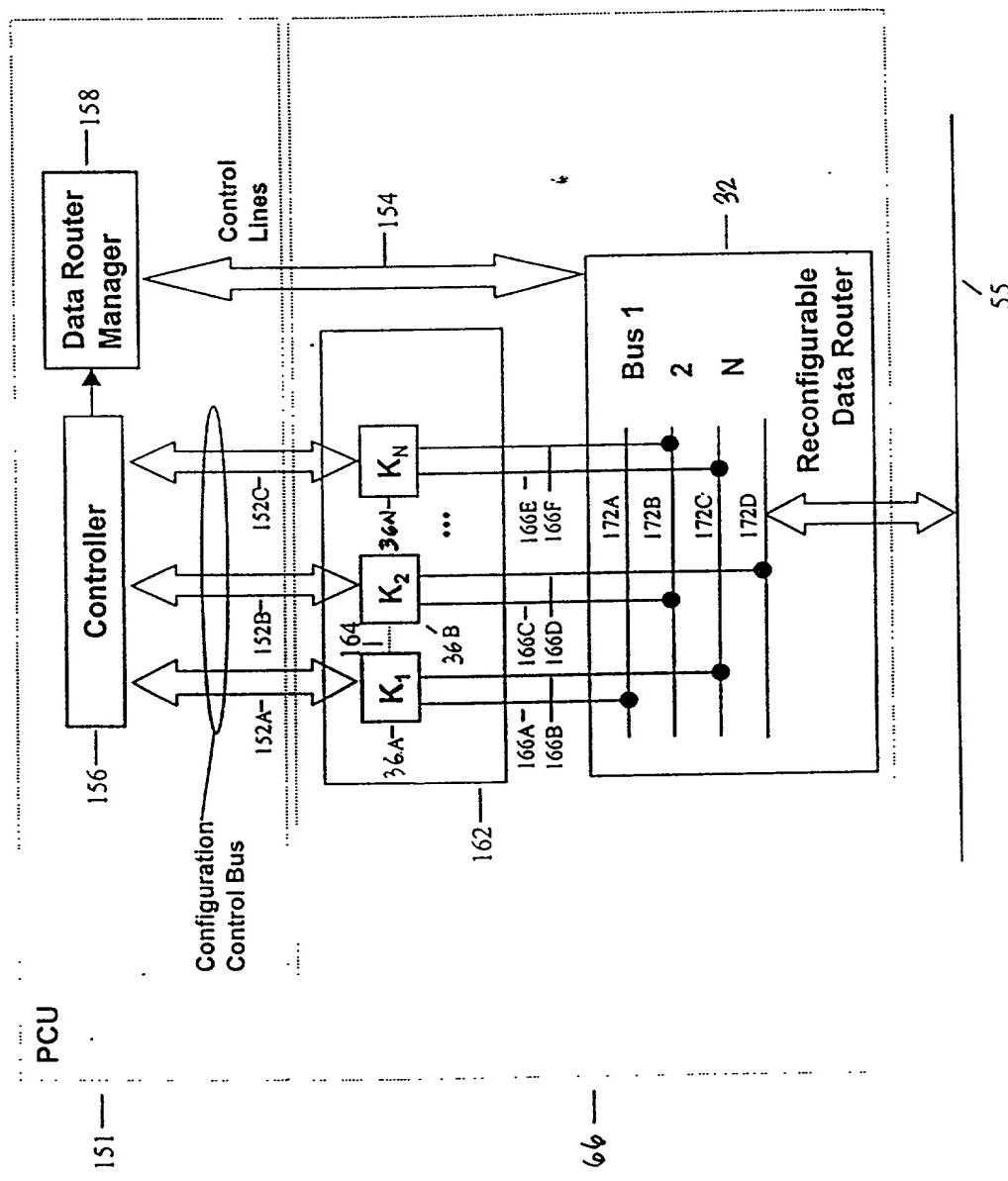


FIG. 3

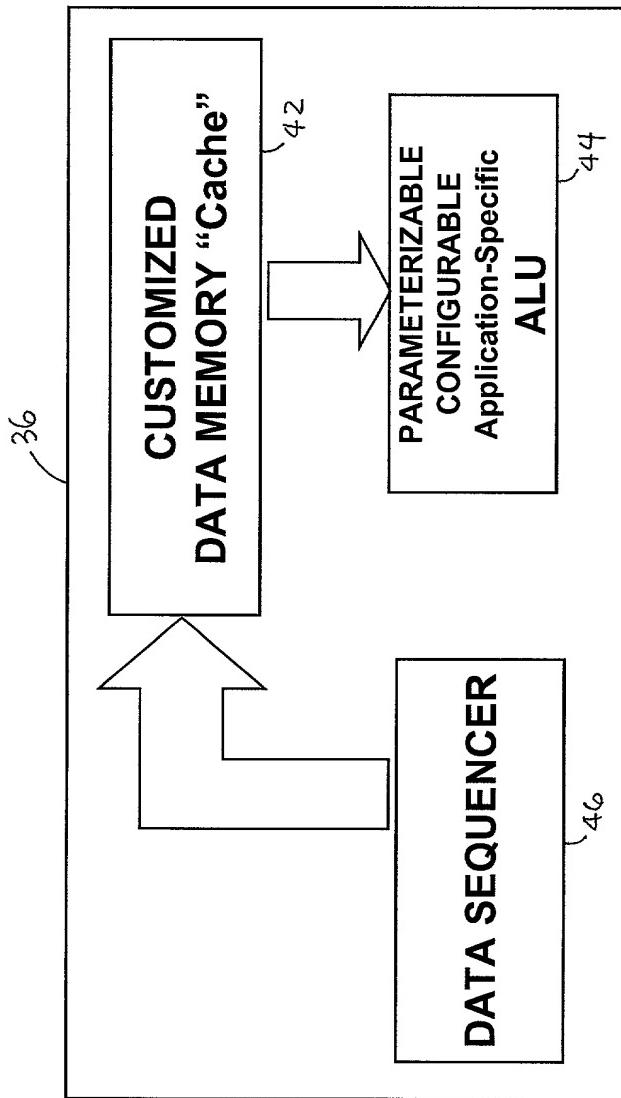
FIG. 4



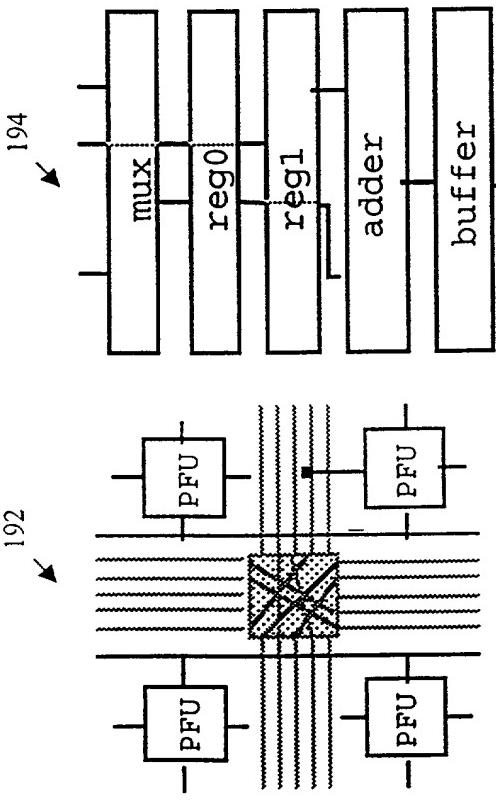
55

76

FIG. 5



Reconfigurable Logic with Programmable Functions Units (PFU)

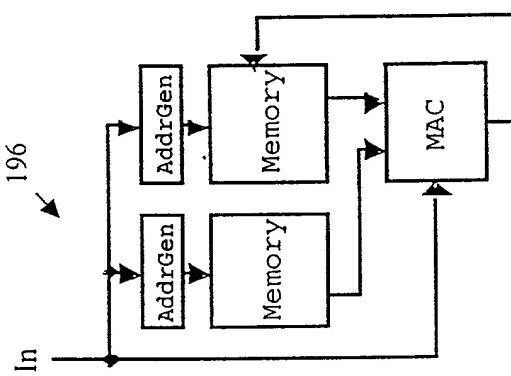


Bit-Level Operations
e.g. encoding

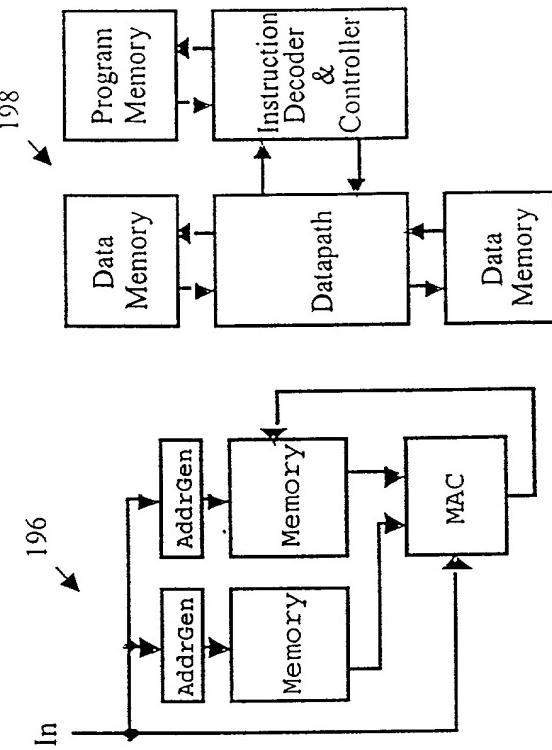
Dedicated data paths
e.g. Filters, AGU

Arithmetic operations
e.g. Convolution

RTOS
Process management



Reconfigurable Datapaths



Reconfigurable Control

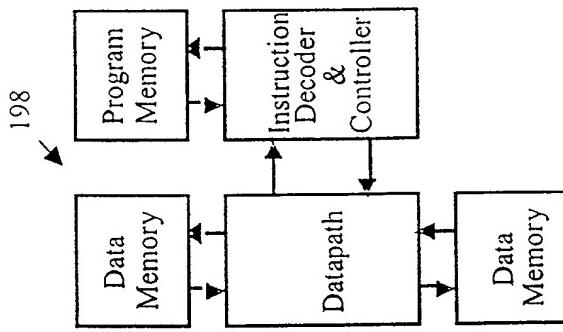


FIG. 6

FIG. 7

Signal Processing Functions

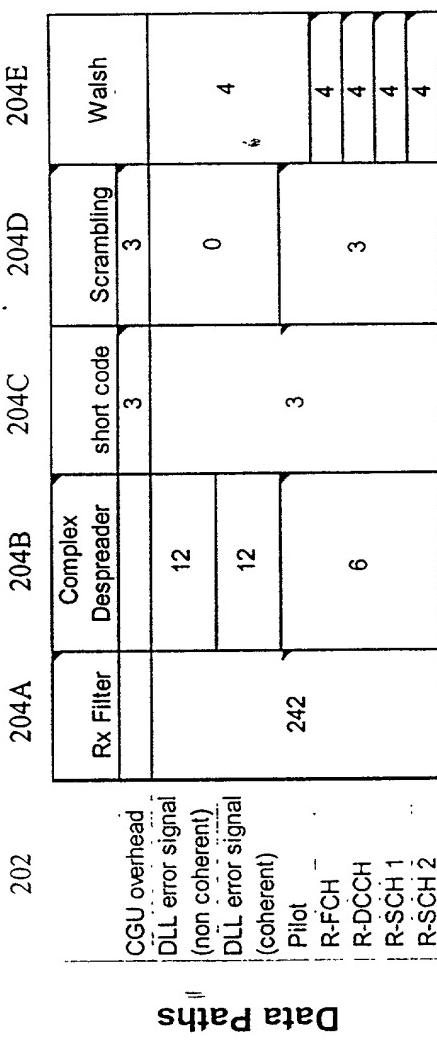


FIG. 8

Parameter Estimation Functions	TDMA				CDMA				
	IS136	GSM	GPRS	EDGE	IS-95B	IS-2000	WCDMA-FDD	GPS	Globalstar
LMS Channel Estimator	x	x	x						
Windowed Average Energy Estimator	x	x	x	x	x	x	x		
ML Symbol Timing Estimator	x	x	x	x	x	x	x	x	
ML Carrier Phase Estimator	x	x	x	x	x	x	x	x	
PN Correlator					x	x	x		
MatchedFilter					x	x	x		
Interference Energy Estimator					x	x			

220
◀

Multi-standard Engine

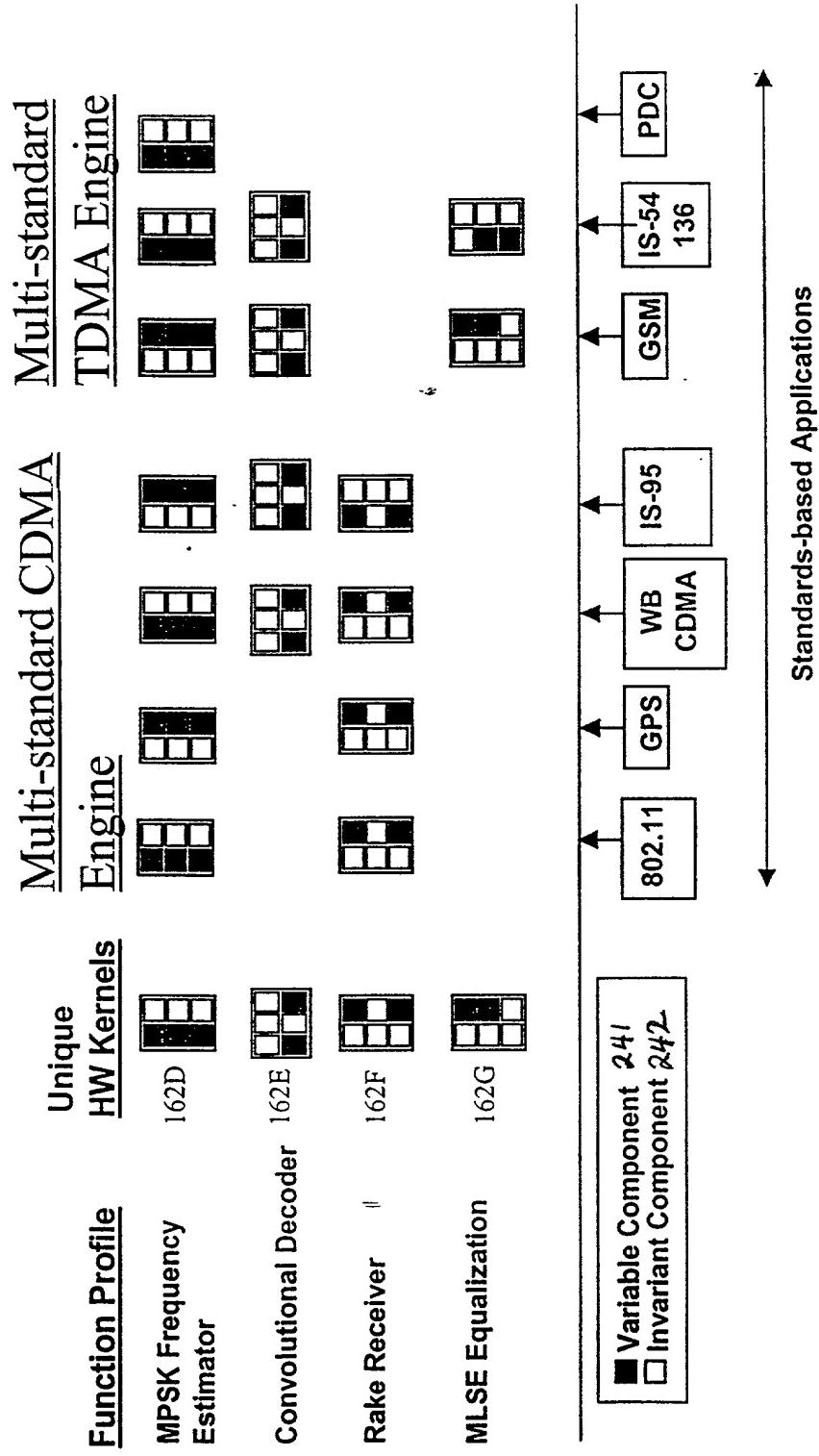


FIG. 9

Signal Processing Flow

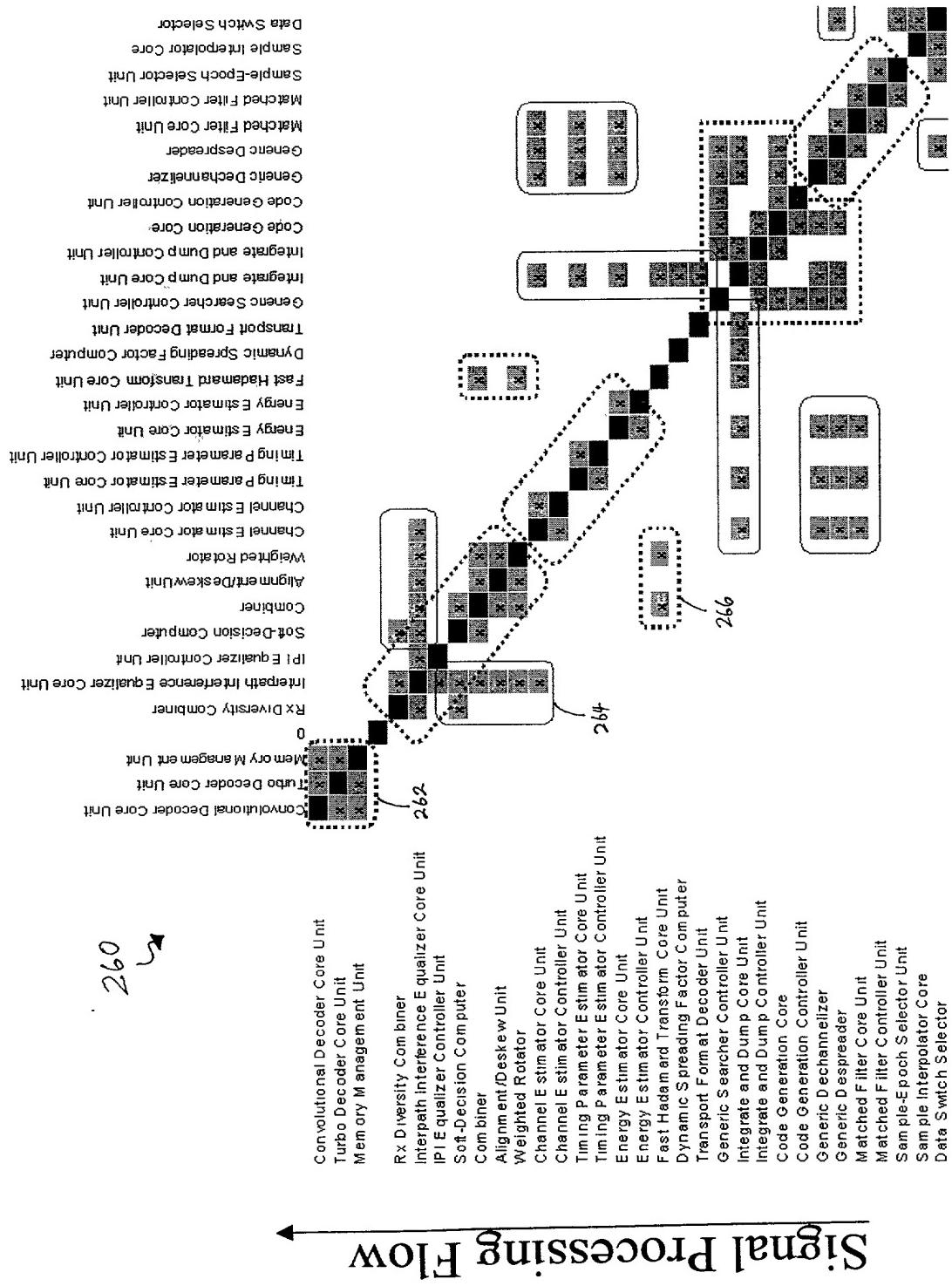


FIG. 10

Application / Product Management

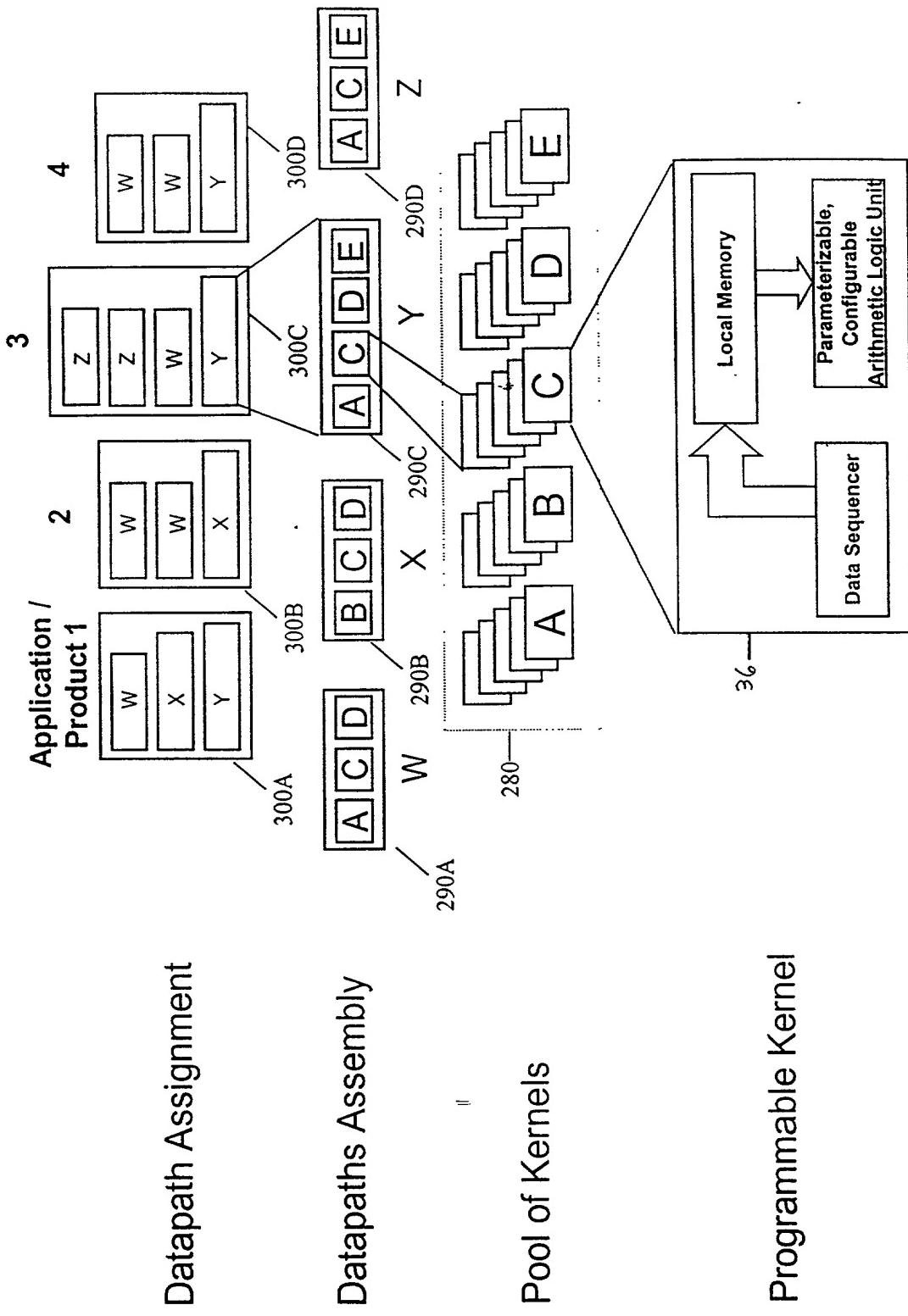


FIG. 11

FIG. 12

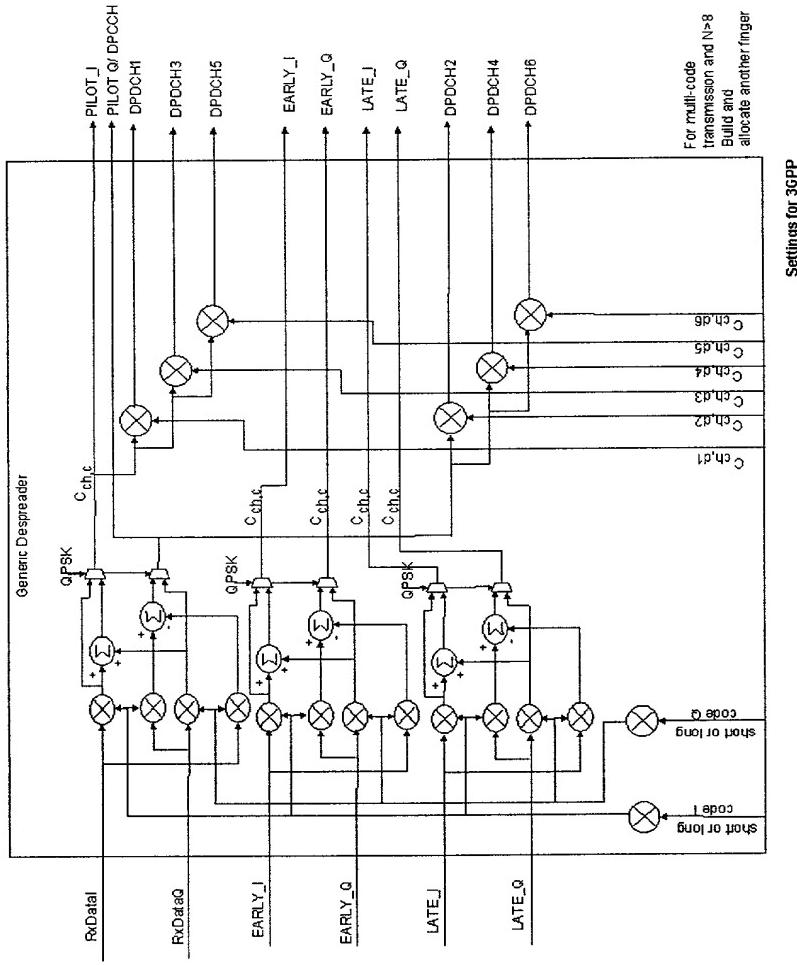


FIG. 13

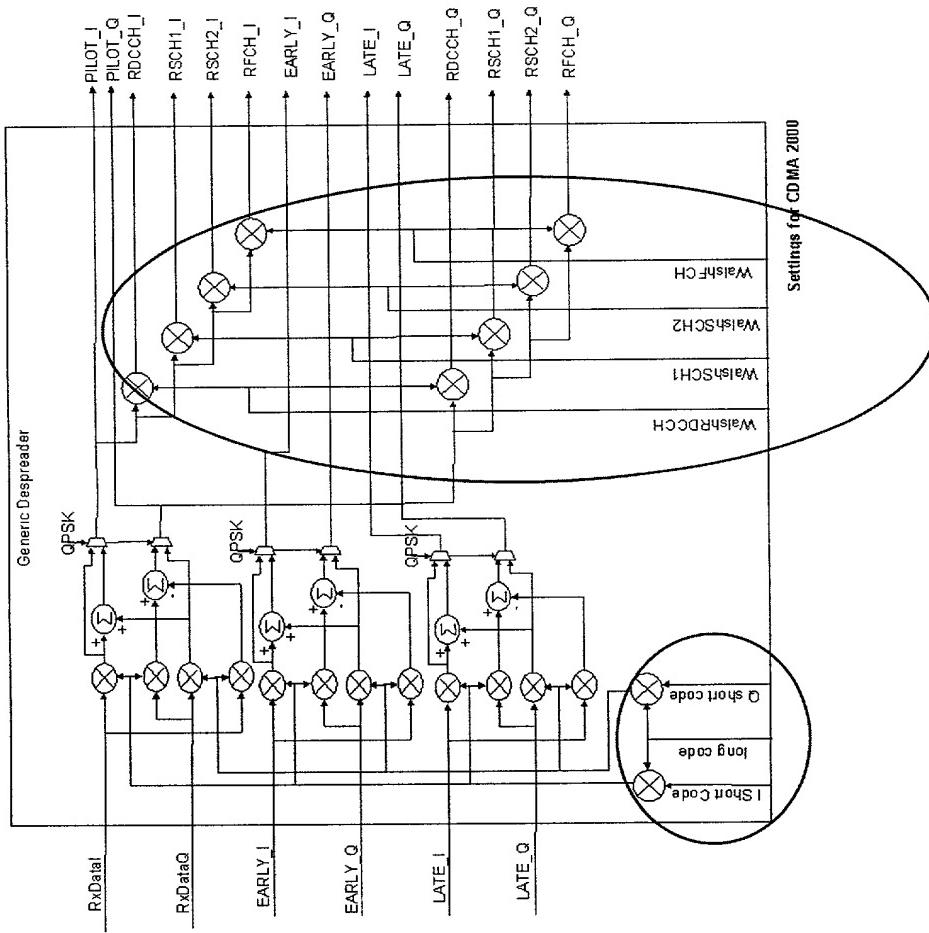
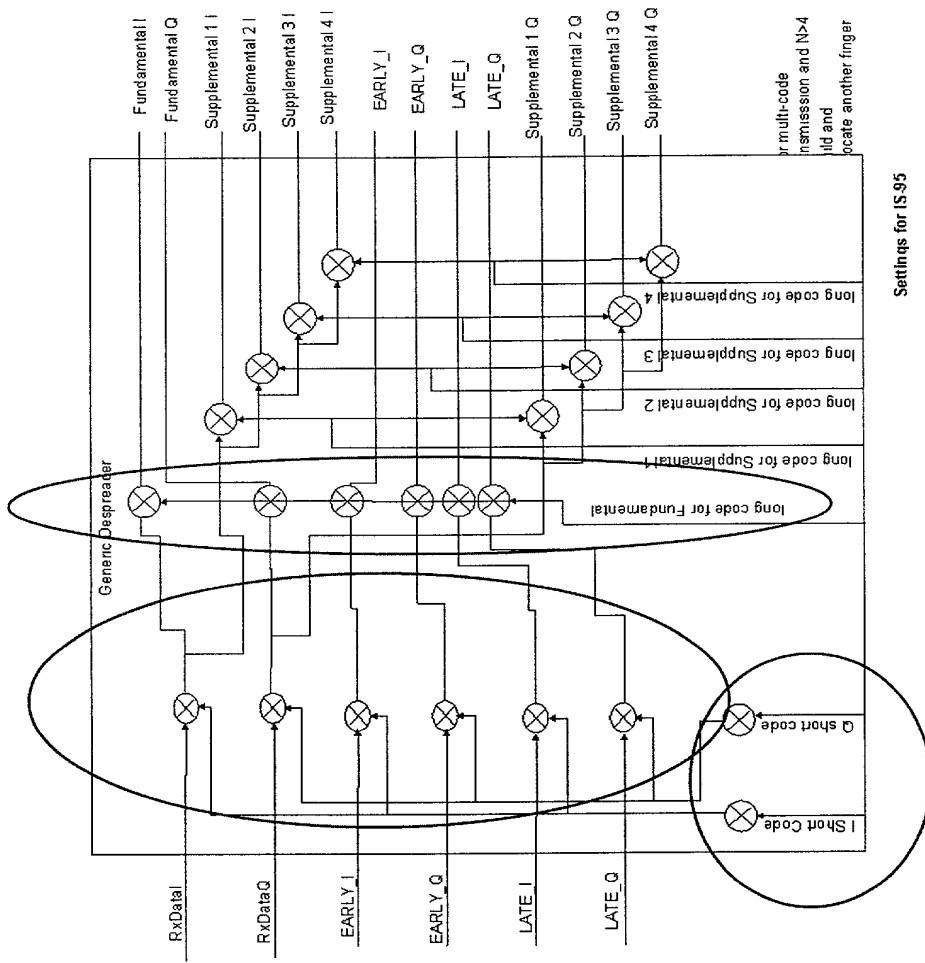


FIG. 14

Figure 14 shows the settings for IS-95.



Settings for IS-95

CDMA Computation Unit Library	
<i>Front End Processing</i> Sample Interpolation	<i>Parameter Estimation</i> Energy Estimator Timing Parameter Estimator Channel Estimator
<i>Chip Rate Processing</i> Sample Epoch Selection Matched Filter Generic Despreaders Generic Dechannelizer Code Generation Unit Integrate and Dump Generic Searcher Control	<i>Channel Element Processing</i> Alignment/Deskewing Combiner Soft Decision Computer Interpath Interference Equalizer Receive Antenna Diversity Combiner
<i>Symbol Sequence Processing</i> Transport Format Decoder Dynamic Spreading Factor Computer Fast Hadamard Transform Rotator/Square	<i>Interleaving</i> Deinterleaver Controller <i>Channel Decoding</i> Turbo Decoder Convolutional Decoder

FIG. 15

TDMA Computation Unit Library	
<i>TDMA Modem Transmitter</i>	<i>TDMA Modem Receiver</i>
Pulse-shaping	Front-end Filtering
Multiplexing	Adaptive Demodulation
Link Adaptation (AMR)	Synchronization
Antenna Transmit Diversity	Adaptive Parameter Estimation
<i>Channel Decoder</i>	Equalization
Reed Solomon Codes Decoding	Diversity Combining
Fire Codes Decoding	Link Adaptation
Decryption	<i>Channel Encoder</i>
Deinterleaving	Encoding
	Encryption
	Interleaving

FIG. 16

FIG. 17

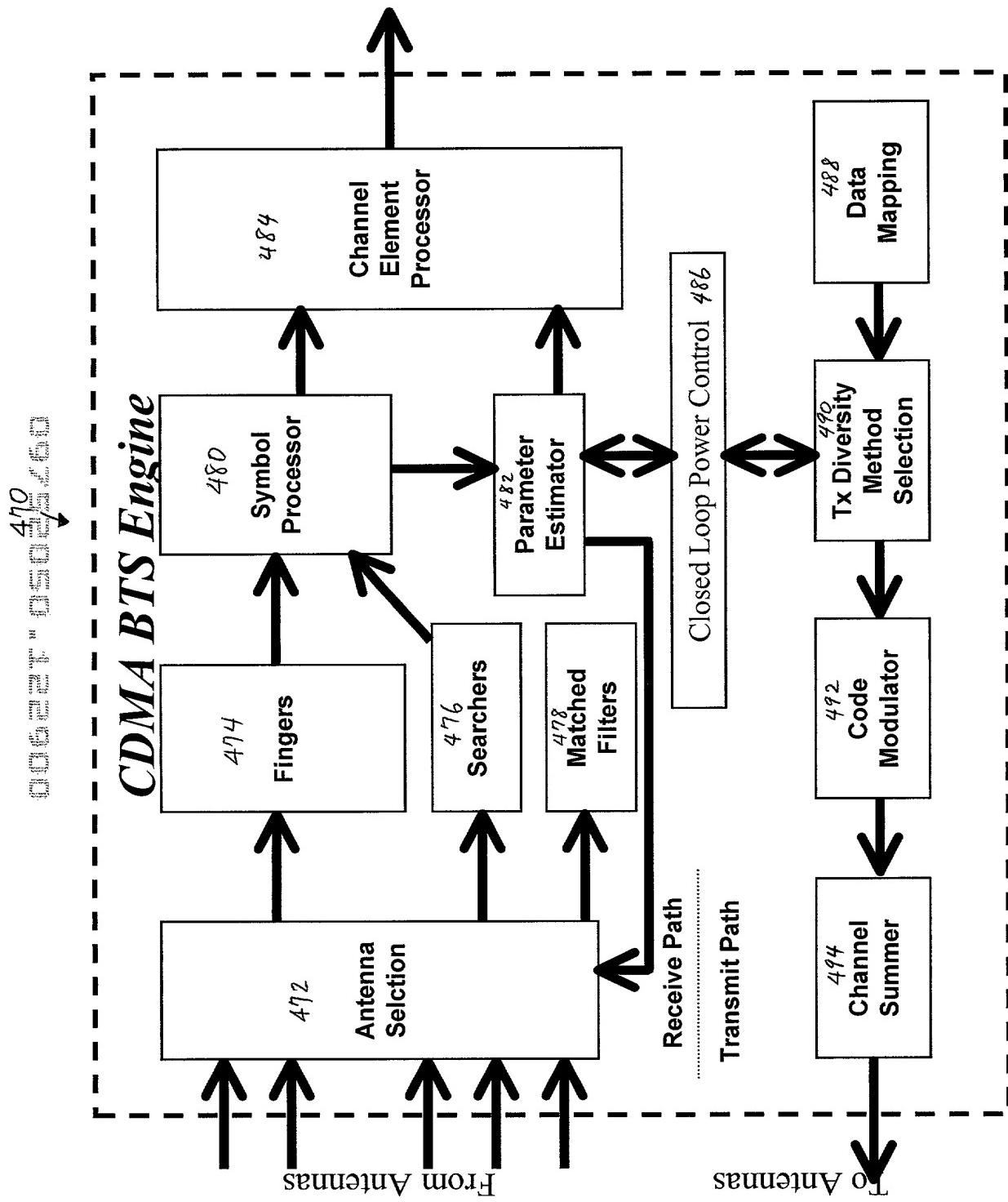


FIG. 18

